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NOTES ON DICHROMATIC HERONS AND HAWKS.

BY OUTRAM BANGS.

IN the Proceedings of the Biological Society of Washington, Vol. XXV, pp. 53-58, Oberholser gives a detailed account of the so-called *Butorides brunescens* (Lembeye) of Cuba and the Isle of Pines and emphatically states his belief that it is a true species quite distinct from the Cuban form of *Butorides virescens* with which it sporadically occurs in the two islands just mentioned. He admits that in size and proportion it exactly agrees with the ordinary Green Heron of Cuba.

Theoretically I have always held the opposite opinion. There is nothing about *Butorides brunescens* that suggests specific distinction to me, everything seeming to point rather to this peculiar form being nothing more or less than an erythristic phase of plumage of *Butorides virescens*.

Up to now, extreme examples of the *brunescens* phase of plumage have been recorded only from Cuba and the Isle of Pines, although as stated by Thayer and myself, and by Oberholser, many specimens from the Pearl Islands, Bay of Panama, show a very decided approach to it, some being nearly as extreme as Cuban skins. In a series of twenty-two specimens from the Pearl Islands, just one half show more or less of this erythristic tendency. The other half of the series (eleven skins) is made up of birds in absolutely normal plumage — quite indistinguishable so far as color and markings are concerned from typical examples of *Butorides virescens*.

Peters, Auk, Vol. XXX, p. 370, described at some length a youngish green heron, M. C. Z. no. 60699, taken by himself at Camp Mengel, Quintana Roo, Mexico, February 7, 1912, that shows decided erythrism and that closely approaches the *brunescens* type of coloration.

Lately while cataloguing that part of the Howe-Shattuck collection of birds which was transferred from the Boston Society of Natural History to the Museum of Comparative Zoölogy, in a long series of Green Herons from Florida, I found one adult female in

extreme *brunescens* plumage. This skin, now M. C. Z. no. 72982, was taken March 22, 1902, at Madeira Hummock, Florida, and was in beautiful, fresh spring plumage. Its neck is a little darker than in specimens in normal plumage, is unicolor lacking all traces of either whitish or dusky markings even on the throat and chin; the belly is dark and reddish and but slightly contrasted against the color of the neck; the wing-edge has no whitish on it whatever; the wing coverts are all very narrowly edged with dark rusty brown, with no creamy or whitish anywhere. It affords the following measurements—wing, 166 mm.; tail feathers, 53; tarsus, 51; exposed culmen, 62.

Unfortunately the measurements taken from this example are not positive proof that it was bred in Florida. The chance however, of its having wandered from Cuba to where it was killed seems rather remote, and I regard it as pretty certainly an instance of erythrism of the continental Green Heron — *Butorides virescens virescens* (Linn.). In his Revision of the subspecies of the Green Heron (Proc. U. S. Nat. Mus., Vol. 42, pp. 529–577) Oberholser gives in his list of measurements, the length of wing in females of *B. virescens virescens*, as ranging from 160 to 185. In females of his *B. virescens cubanus* from 155 to 174. The Cuban form does, of course, average smaller in all measurements than *B. virescens virescens*, but single individuals cannot be separated, if their measurements happen to fall — as in the case of the specimen I have just described — between the extremes.

Cory's Least Bittern, *Ixobrychus neoxenus* (Cory), is a similar case of nothing more or less than erythrism of the common Least Bittern, *Ixobrychus exilis* (Gml.) as I have wholly satisfied myself by an examination of specimens, which vary among themselves as to the degree of erythrism shown. It crops out, here and there, anywhere, within the range of the species, and has no distinct range of its own.

Another dichromatism common among herons, and now thoroughly well understood, is the very striking one, of a pure white — albinistic — phase, and a normally colored, — usually bluish and reddish — phase shown by the same species. The three species showing this extraordinary tendency, and now admitted by nearly all systematic ornithologists to be dichromatic, are the Red-

dish Egret of America, *Dichromanassa rufescens* (Gml.) whose white phase has been named *D. pealei* (Bp.). In some places, especially in some of the Bahamas, this species presents a mixed plumage, partly white and partly blue, called by Maynard *Ardea rufa mutata*. The Reef Heron, *Demigretta sacra* (Gml.) of the coasts and islands of the Indian and Pacific Oceans; and the Little Blue Heron, *Florida caerulea* (Linn.). In this latter species the white dress is usually a sign of immaturity, and is changed, for a blue one as the bird becomes fully adult. But this is not always the case. I have myself seen birds breeding in the white plumage, and fancy that such individuals retain the white dress throughout life.

Albinism, melanism and erythrism are of course but manifestations of an abnormal condition of pigmentation, and as such are directly inherited. Thus, miscolored forms of this kind may appear to have geographic limitations, similar to those of real subspecies.

All these facts being perfectly well known, and all other Herons showing dichromatism having been finally treated as such by ornithologists, it seems to me extraordinary that the Great White Heron of Florida should still be dealt with as though it were a species.

There is an accumulation of evidence now, both printed and on the labels of museum specimens, to show that *Ardea occidentalis* Aud. and *Ardea herodias wardi* Ridg. breed together freely. We also have an intermediate form in *Ardea würdemanni* Baird, that is very variable, sometimes shading toward the blue phase, sometimes toward the white phase. All three are of exactly the same size and proportions, and show no specific characters except color, which I consider has no real significance in such a case.

In Cuba and the Isle of Pines a Great White Heron also occurs, associated with birds in normal plumage,— *Ardea repens* Bangs and Zappey. This form can be separated from the Great White Heron of Florida by its lesser dimensions. In size and proportions it exactly agrees with the Great Blue Heron of the West Indies, the white phase of which I unhesitatingly pronounce it to be.

I should therefore propose to change the standing of some of the American Herons as follows —

Ixobrychus neoxenus (Cory) must become a synonym of

IXOBRYCHUS EXILIS (Gml.).

Ardea herodias wardi Ridg. and *Ardea würdemanni* Baird both become synonyms of

ARDEA HERODIAS OCCIDENTALIS Aud.

The West Indies Great Blue Heron, becomes

ARDEA HERODIAS REPENS Bangs & Zappey,

with *Ardea herodias adoxxa* Oberholser as a synonym, and the Cuban Green Heron, if really distinct from *Butorides virescens maculatus* (Bodd.), of Martinique, which I doubt, becomes,

BUTORIDES VIRESCENS BRUNESCENS (Lemb.)

with *Butorides virescens cubanus* Oberholser a synonym.

The Hawks, now admitted by, I think, all bird anatomists to be close relations of the Herons, show an array of color variation due to melanism, erythrism and even albinism, such as no other group of birds presents. The melanistic forms are so common, have been so much discussed and are so well known that I shall pass them by entirely here.

The most sharply marked instance of dichromatism, that I know in the Hawks, that is due to erythrism, is in the Cuban Sparrow Hawk, *Falco sparverius sparveroides* Vig. In Cuba and the Isle of Pines, the normally colored pale birds and the reddish brown, erythristic examples, are about equally common, occur everywhere together, and breed, mated indiscriminately.

An instance of albinism in the Hawks, which on account of the tendency of the causes of this disease to be inherited, gives the bird a semblance of geographical limitations like those of a subspecies, is the famous white Goshawk of Kamchatka and parts of east Siberia, *Accipiter*¹ *gentilis albidus* (Menzb.). This bird has recently been discussed at length by Hartert, (*Die Vögel der paläarktischen Fauna*, Vol. II, p. 1149), who points out that normally colored birds do occur with it, as well as all intermediate stages, and who considers it only an albinistic phase of *Accipiter g. schvedowi* (Menzb.).

I have no doubt myself that the White Goshawk of Australia, *Accipiter nova-hollandiæ* (Gmel.), is an albinistic phase of *Accipiter cinereus* (Vieill.) with which it occurs in the same regions.

¹ *Astur*, of course, if one wants to recognize that genus.